

credit balances may be adjusted by EPA.

(h) If EPA review determines a reporting error in the manufacturer's favor (that is, resulting in an increased credit balance) or if the manufacturer discovers such an error within 270 days of the end of the model year, EPA shall restore the credits for use by the manufacturer.

(i) For 2007 and later model years, include in your end-of-year and final reports an accounting to show a separate balance of emission credits for handheld and nonhandheld engines. Use your best judgment to differentiate your current balance of banked credits for handheld and nonhandheld engines. You may exchange handheld and nonhandheld credits to demonstrate compliance with the requirements of this part 90. However, emission credits you generate for banking under this part 90 will be restricted for engines subject to the requirements of 40 CFR part 1054.

[64 FR 15239, Mar. 30, 1999, as amended at 73 FR 59181, Oct. 8, 2008]

§ 90.211 Request for hearing.

An engine manufacturer may request a hearing on the Administrator's voiding of the certificate under § 90.203(h), § 90.206(e), § 90.207(f), § 90.208(c), or § 90.209(f), pursuant to § 90.124. The procedures of § 90.125 shall apply to any such hearing.

Subpart D—Emission Test Equipment Provisions

§ 90.301 Applicability.

(a) This subpart describes the equipment required in order to perform exhaust emission tests on new nonroad spark-ignition engines and vehicles subject to the provisions of subpart A of this part. Certain text in this subpart is identified as pertaining to Phase 1 or Phase 2 engines. Such text pertains only to engines of the specified Phase. If no indication of Phase is given, the text pertains to all engines, regardless of Phase.

(b) Exhaust gases, either raw or dilute, are sampled while the test engine is operated using a steady state test cycle on an engine dynamometer. The

exhaust gases receive specific component analysis determining concentration of pollutant. Emission concentrations are converted to mass emission rates in grams per hour based on either fuel flow, fuel flow and engine intake air flow, or exhaust volume flow. Weighted emission rates are reported as grams per brake-kilowatt hour (g/kW-hr). See subpart E of this part for a complete description of the test procedure.

(c) Additional information about system design, calibration methodologies, and so forth, for raw gas sampling can be found in 40 CFR part 1065. Examples for system design, calibration methodologies, and so forth, for dilute exhaust gas sampling can be found in 40 CFR part 1065.

(d) For Phase 2 Class I, Phase 2 Class I-B, and Phase 2 Class II natural gas fueled engines, use the procedures of 40 CFR part 1065 to measure nonmethane hydrocarbon (NMHC) exhaust emissions from Phase 2 Class I, Phase 2 Class I-B, and Phase 2 Class II natural gas fueled engines.

[60 FR 34598, July 3, 1995, as amended at 64 FR 15243, Mar. 30, 1999; 65 FR 24312, Apr. 25, 2000; 70 FR 40448, July 13, 2005]

§ 90.302 Definitions.

The definitions in § 90.3 apply to this subpart. The following definitions also apply to this subpart.

Intermediate speed means the engine speed which is 85 percent of the rated speed.

Natural gas means a fuel whose primary constituent is methane.

Rated speed means the speed at which the manufacturer specifies the maximum rated power of an engine.

[64 FR 15243, Mar. 30, 1999]

§ 90.303 Symbols, acronyms, abbreviations.

(a) The acronyms and abbreviations in § 90.5 apply to this subpart.

(b) The symbols in table 1 in appendix A of this subpart apply to this subpart.

§ 90.304 Test equipment overview.

(a) All engines subject to this subpart are tested for exhaust emissions. Engines are operated on dynamometers

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meeting the specification given in § 90.305.

(b) The exhaust is tested for gaseous emissions using a raw gas sampling system as described in § 90.414 or a constant volume sampling (CVS) system as described in § 90.421. Both systems require analyzers (see paragraph (c) of this section) specific to the pollutant being measured.

(c) Analyzers used are a non-dispersive infrared (NDIR) absorption type for carbon monoxide and carbon dioxide analysis; paramagnetic (PMD), zirconia (ZRDO), or electrochemical type (ECS) for oxygen analysis; a flame ionization (FID) or heated flame ionization (HFID) type for hydrocarbon analysis; and a chemiluminescent detector (CLD) or heated chemiluminescent detector (HCLD) for oxides of nitrogen analysis.

§ 90.305 Dynamometer specifications and calibration accuracy.

(a) *Dynamometer specifications.* The dynamometer test stand and other instruments for measurement of speed and power output must meet the engine speed and torque accuracy requirements shown in Table 2 in Appendix A of this subpart. The dynamometer must be capable of performing the test cycle described in § 90.410.

(b) *Dynamometer calibration accuracy.*

(1) The dynamometer test stand and other instruments for measurement of power output must meet the calibration frequency shown in Table 2 in Appendix A of this subpart.

(2) A minimum of three calibration weights for each range used is required. The weights must be equally spaced and traceable to within 0.5 percent of National Institute for Standards and Testing (NIST) weights. Laboratories located in foreign countries may certify calibration weights to local government bureau standards.

§ 90.306 Dynamometer torque cell calibration.

(a)(1) Any lever arm used to convert a weight or a force through a distance into a torque must be used in a horizontal position for horizontal shaft dynamometers (\pm five degrees). For vertical shaft dynamometers, a pulley system may be used to convert the

dynamometer's horizontal loading into the vertical plane.

(2) Calculate the indicated torque (IT) for each calibration weight to be used by:

$$IT = \text{Moment Arm (meters)} \times \text{Calibration Weight (Newtons)}$$

(3) Attach each calibration weight specified in § 90.305(b)(2) to the moment arm at the calibration distance determined in paragraph (a)(2) of this section. Record the power measurement equipment response (N-m) to each weight.

(4) Compare the torque value measured to the calculated torque.

(5) The measured torque must be within two percent of the calculated torque.

(6) If the measured torque is not within two percent of the calculated torque, adjust or repair the system. Repeat steps in paragraphs (a)(1) through (a)(6) of this section with the adjusted or repaired system.

(b) Option. A master load-cell or transfer standard may be used to verify the torque measurement system.

(1) The master load-cell and read out system must be calibrated using weights specified in § 90.305(b)(2).

(2) Attach the master load-cell and loading system.

(3) Load the dynamometer to a minimum of three equally spaced torque values as indicated by the master load-cell for each in-use range used.

(4) The in-use torque measurement must be within two percent of the torque measured by the master system for each load used.

(5) If the in-use torque is not within two percent of the master torque, adjust or repair the system. Repeat steps in paragraphs (b)(2) through (b)(4) of this section with the adjusted or repaired system.

(c) Calibrated resistors may not be used for engine flywheel torque transducer calibration, but may be used to span the transducer prior to engine testing.

(d) Other engine dynamometer system calibrations such as speed are performed as specified by the dynamometer manufacturer or as dictated by good engineering practice.